

Application No. 10/805,816
Amendment dated August 7, 2006
Reply to Office Action dated April 5, 2006

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AMENDMENT TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A process for measuring pressure buildup in one or more body compartments that encases muscular tissue, comprising the steps of:
transmitting ultrasonic waves into a body compartment;
capturing a sequence of reflections of the transmitted ultrasonic;
assessing a body compartment configuration; and
converting the ultrasonic sequence into an electrical sequence;
mathematically manipulating the electrical sequence such that amplitude changes of the manipulated sequence, at a substantially constant frequency, correspond to phase changes of the ultrasonic sequence;
analyzing amplitude changes of the manipulated sequence to identify identifying the effect of pulsatile components on at least one surface layer dimension of the body compartment;
and
categorizing pressure build up in the body compartment based on the identified effect.
2. (Cancelled) ~~The process of claim 1, wherein the step of assessing a body compartment configuration comprises means for activation and reception of ultrasonic waves.~~
3. (Currently Amended) The process of claim 1, wherein the step of mathematically manipulating the electrical sequence includes the step of ~~assessing a body compartment configuration comprises~~ identifying characteristics of the body compartment selected from the group consisting of the blood vessel network, compartment boundary and combinations thereof.
4. (Currently Amended) The process of claim 3, wherein the step of ~~assessing a body~~

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3

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Application No. 10/805,816
Amendment dated August 7, 2006
Reply to Office Action dated April 5, 2006

~~compartment configuration~~ identifying characteristics of the body compartment comprises identifying blood vessel network characteristics of the body compartment through a broadband ultrasonic transmit/receive transducer.

5. (Currently Amended) The process of claim 3, wherein the step of ~~assessing a body compartment configuration~~ identifying characteristics of the body compartment comprises identifying compartment boundary characteristics of the body compartment through a pure-tone ultrasonic transmit/receive transducer.

6. (Currently Amended) The process of claim 1, wherein the step of capturing a sequence of reflections ~~identifying the effect of pulsatile components on at least one dimension of the body compartment~~ includes means for capturing temporal reception of ultrasonic waves.

7. (Currently Amended) The process of claim 6, wherein the ~~means for capturing temporal reception of ultrasonic waves includes means for processing the temporal reception of ultrasonic waves~~ step of mathematically manipulating the electrical sequence such that amplitude changes of the manipulated sequence, at a substantially constant frequency, correspond to phase changes of the ultrasonic sequence comprises utilizing the Fourier Transform method.

8. (Original) The process of claim 1, further comprising the step of placing the body compartment at maximum distension prior to assessing the body compartment configuration.

9. (Original) The process of claim 1, wherein the body compartment comprises a tubular shaped collagenous membrane selected from the group consisting of arm, leg, other muscle groups and combinations thereof.

10. (Original) A method for preventing tissue necrosis comprising the process of claim 1.

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4

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Application No. 10/805,816
Amendment dated August 7, 2006
Reply to Office Action dated April 5, 2006

11. (Original) An incision product produced by determining the presence of Compartment Syndrome from the process of claim 1.
12. (Original) A non-incision product produced by determining the absence of Compartment Syndrome from the process of claim 1.
13. (Currently Amended) An apparatus for measuring pressure build-up in one or more body compartments that ~~encases~~ encase muscular tissue, comprising:
- (a) a transmitting device for imparting ultrasonic waves into the one or more body compartments;
 - (b) means for positioning the ~~transducer~~ transmitting device adjacent to the one or more body compartments effective for imparting ultrasonic waves therein;
 - (c) means for capturing reflections of the imparted ultrasonic waves and converting the reflected waves into electrical signals;
 - (d) means for mathematically manipulating the electrical signals; and,
 - (e) means for categorizing pressure build-up in the one or more body compartments from the mathematical manipulations.
14. (Original) The apparatus of claim 13, wherein the transmitting device comprises a transducer.
15. (Original) The apparatus of claim 13, wherein the means for placing the transducer comprises a gel.
16. (Original) The apparatus of claim 13, wherein the means for capturing comprises a retention means selected from the group consisting of storage, display, analysis and combinations thereof.

Application No. 10/805,816
Amendment dated August 7, 2006
Reply to Office Action dated April 5, 2006

17. (Original) The apparatus of claim 13, wherein the mathematical manipulation of the electrical signals comprises Fourier Transform manipulation.
18. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up further comprises means for identifying a decrease in the captured imparted ultrasonic waves.
19. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up further comprises means for identifying a ratio of low-frequency amplitudes to high frequency amplitudes present in the mathematical manipulation.
20. (Original) The apparatus of claim 13, wherein categorizing pressure build-up in one or more body compartment comprises a body compartment selected from the group consisting of arms, legs, other muscle groups and combinations thereof.
21. (Original) The apparatus of claim 13, wherein the means for capturing comprises a receiver.
22. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up comprises means for assessing a body compartment configuration and identifying the effect of pulsatile components on at least one dimension of the body compartment.
23. (Original) The apparatus of claim 22, wherein the means for categorizing pressure build-up further comprises a time-reversal technique.
24. (Currently Amended) An apparatus for measuring pressure build-up in one or more body compartments that encases encase muscular tissue, comprising:
- (a) a transmitting device for imparting ultrasonic waves into the one or more body compartments;

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6

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Application No. 10/805,816
Amendment dated August 7, 2006
Reply to Office Action dated April 5, 2006

(b) means for positioning the ~~transducer~~ transmitting device adjacent to the one or more body compartments effective for imparting ultrasonic waves therein;

(c) a receiver for capturing reflections of the imparted ultrasonic waves;

(d) means for mathematically manipulating the ultrasonic waves captured by the receiver;

and,

(e) means for categorizing pressure build-up in the one or more body compartments from the mathematical manipulations.

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